AMENDMENTS TO THE CLAIMS

Claim 1. (currently amended) An image processing apparatus, comprising:

specific hierarchy encoding means for encoding a specific hierarchy image data item, among image data items in respective hierarchies produced by dividing image data to be encoded, by performing an encoding process for an intra picture, or an encoding process for a non-intra picture;

average pixel value detecting means for detecting an average pixel value of the specific hierarchy image data item as reference data; and

control means for controlling the encoding process performed by the specific hierarchy encoding means;

wherein when the encoding process for the intra picture is to be performed, the specific hierarchy encoding means performs the encoding process for the intra picture after subtracting the reference data having a value other than zero from the specific hierarchy image data item.

Claim 2. (original) An image processing apparatus according to claim 1, further comprising multiplexing means for multiplexing the reference data with an output of the specific hierarchy encoding means.

Claim 3. (original) An image processing apparatus according to claim 1, further comprising storage means for storing the reference data.

Claim 4. (canceled)

Claim 5. (original) An image processing apparatus according to claim 1, wherein the image data items in hierarchies include a basic hierarchy image data item and a higher hierarchy image data item obtained by subtracting the basic hierarchy image data item from the image data to be encoded, and the specific hierarchy image data item is the higher hierarchy image data item.

Claim 6. (original) An image processing apparatus according to claim 5, further comprising higher hierarchy encoding means for encoding the higher hierarchy image data item by performing the encoding process for the intra picture or the encoding process for the non-intra picture, wherein when the encoding process for the intra picture is to be performed, the higher hierarchy encoding means performs the encoding process for the intra picture without subtracting the reference data from the specific hierarchy image data item.

Claim 7. (original) An image processing apparatus according to claim 1, further comprising division means for dividing the image data to be encoded to produce the image data items in hierarchies.

Claim 8. (original) An image processing apparatus according to claim 1, wherein when the encoding process for the inter picture is to be performed, the specific hierarchy encoding means performs the encoding process for the intra picture after subtracting image data corresponding to a previous frame from the image data item in a given hierarchy.

Claim 9. (currently amended) An image processing apparatus, comprising:

separation means for separating specific hierarchy encoded data item and reference data from a stream in which the specific hierarchy encoded data item and the reference data are multiplexed; the reference data being an average pixel value of the specific hierarchy image data;

determination means for determining whether the specific hierarchy encoded data item, encoded by performing an encoding process for an intra picture or an encoding process for a non-intra picture on a specific hierarchy image data item among image data items in respective hierarchies produced by dividing image data to be encoded, is encoded by performing the encoding process for the intra picture or the encoding process for the non-intra picture; and

specific hierarchy decoding means for decoding the specific hierarchy image data item from the specific hierarchy encoded data item based on a result of determination by the determination means,

wherein when a decoding process for the intra picture is to be performed, the specific hierarchy decoding means performs the decoding process on the specific hierarchy encoded data item using reference data having a value other than zero.

Claim 10. (canceled)

Claim 11. (original) An image processing apparatus according to claim 9, further comprising storage means for storing the reference data.

Claim 12. (original) An image processing apparatus according to claim 9, wherein the image data items in hierarchies produced by dividing the image data to be encoded include a basic hierarchy image data item and a higher hierarchy image data item obtained by subtracting the basic hierarchy image data item from the image data to be encoded, and the specific hierarchy image data item is the higher hierarchy image data item.

Claim 13. (original) An image processing apparatus according to claim 12, further comprising higher hierarchy image decoding means for performing the decoding process for the intra picture or a decoding process for the non-intra picture on the higher hierarchy encoded data item produced by performing the encoding process for the intra picture or the encoding process for the non-intra picture on the higher hierarchy image data item, thereby decoding the higher hierarchy image data item, wherein when the decoding process for the intra picture is to be performed, the higher hierarchy image decoding means performs the decoding process for the intra picture on the higher hierarchy encoded data item without using the reference data.

Claim 14. (original) An image processing apparatus according to claim 12, further comprising encoded image decoding means for decoding the image data to be encoded based on the higher hierarchy image data item and the specific hierarchy image data item.

Claim 15. (currently amended) An image processing method, comprising the steps of:

dividing image data to be encoded to produce image data items in respective hierarchies; ~~and~~

encoding a specific hierarchy image data item among the image data items in respective hierarchies by performing an encoding process for an intra picture or an encoding process for a non-intra picture; and

detecting an average pixel value of the specific hierarchy image data item as the reference data;

wherein when the encoding process for the intra picture is to be performed, the encoding process for the intra picture is performed in the encoding step after subtracting reference data having a value other than zero from the specific hierarchy image data item.

Claim 16. (original) An image processing method according to claim 15, further comprising the step of multiplexing the reference data with an output of the encoding step.

Claim 17. (canceled)

Claim 18. (original) An image processing method according to claim 15, wherein the image data items in hierarchies include a basic hierarchy image data item and a higher hierarchy image data item obtained by subtracting the basic hierarchy image data item from the image data to be encoded, and the specific hierarchy image data item is the higher hierarchy image data item.

Claim 19. (currently amended) An image processing method, comprising the steps of:

separating specific hierarchy encoded data item and reference data from a stream in which the specific hierarchy encoded data item and the reference data are multiplexed, the reference data being an average pixel value of the specific hierarchy image data;

determining whether the specific hierarchy encoded data item, encoded by performing an encoding process for an intra picture or an encoding process for a non-intra picture on a specific hierarchy image data item among image data items in respective hierarchies produced by dividing image data to be encoded, is encoded by performing the encoding process for the intra picture or the encoding process for the non-intra picture; and

decoding the specific hierarchy image data item from the specific hierarchy encoded data item based on a result of determination in the determining step;

wherein when a decoding process for the intra picture is to be performed, in the step of decoding the specific hierarchy image data item the decoding process is performed on the specific hierarchy encoded data item using reference data having a value other than zero.

Claim 20. (canceled)

Claim 21. (original) An image processing method according to claim 19, wherein the image data items in hierarchies include a basic hierarchy image data item and a higher hierarchy image data item obtained by subtracting the basic hierarchy image data item from the image data to be encoded, and the specific hierarchy image data item is the higher hierarchy image data item.

Claim 22. (original) An image processing method according to claim 21, further comprising the step of performing the decoding process for the intra picture or a decoding process for the non-intra picture on the higher hierarchy encoded data item produced by performing the encoding process for the intra picture or the encoding process for the non-intra picture on the higher hierarchy image data item, thereby decoding the higher hierarchy image data item, wherein when the decoding process for the intra picture is to be performed, in the step of decoding the higher hierarchy image data item the decoding process for the intra picture is performed on the higher hierarchy encoded data item without using the reference data.

Claim 23. (original) An image processing method according to claim 21, further comprising the step of decoding the image data to be encoded based on the higher hierarchy image data item and the specific hierarchy image data item.